

**Crystal Powerplant  
10-30 MW**

**Ancillary Services**

**Crystal  
Ancillary Services**

Spinning Reserve	Yes
Non-Spinning Reserve	Yes
Replacement Reserve	Yes
Regulation/Load Following	Yes
Black Start	Yes
Voltage Support	Yes

**Generators**

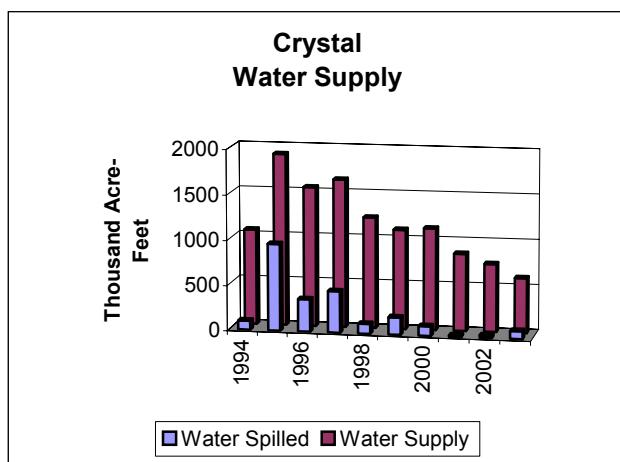
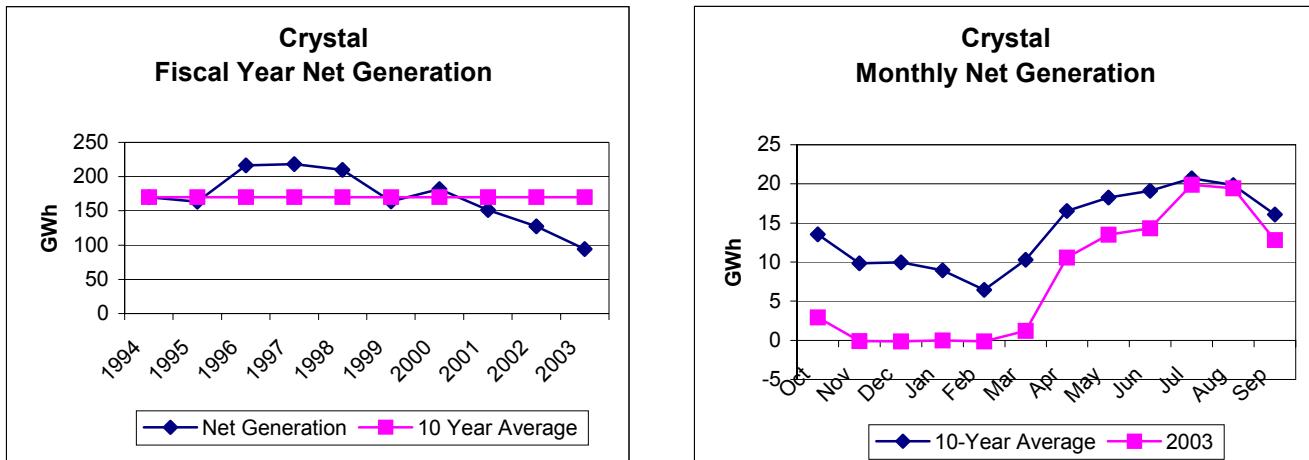
**Crystal Generators**

Existing Number and Capacity

Unit #	Original Capacity (kW)	Capacity Increased (kW)	Present Capacity (kW)
1	28,000	0	28,000
1 Unit	28,000	0	28,000

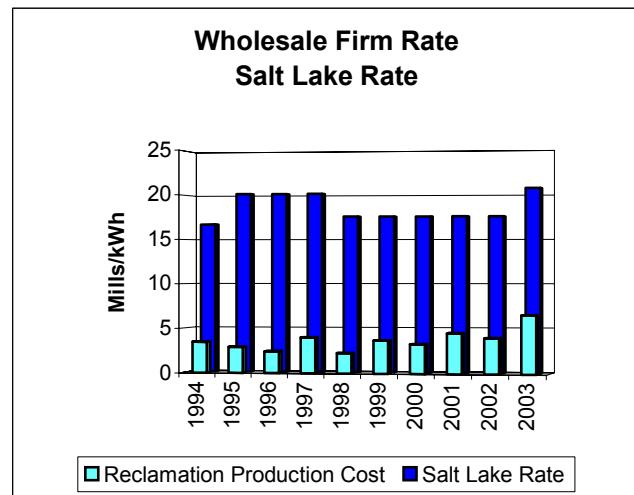
**Crystal Powerplant**  
**10-30 MW**

**Generation**

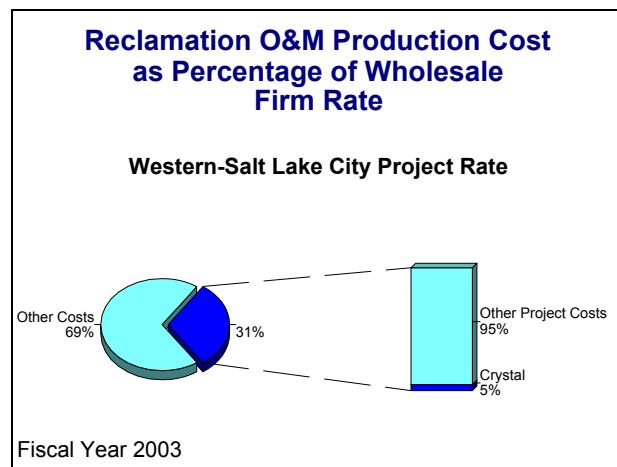


### **Prime Laboratory Benchmarks**

#### **Benchmark 1** **Wholesale Firm Rate**

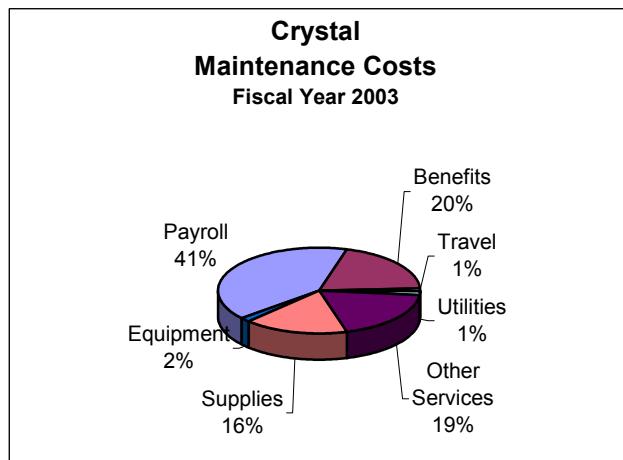
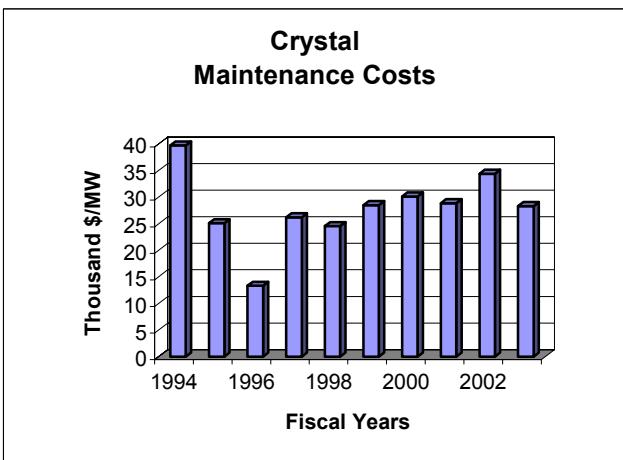
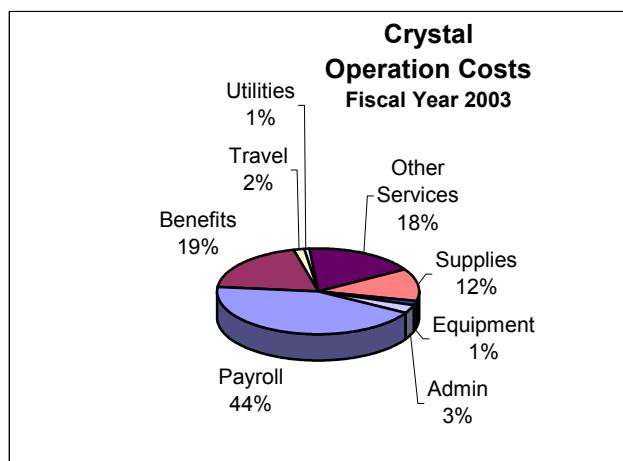
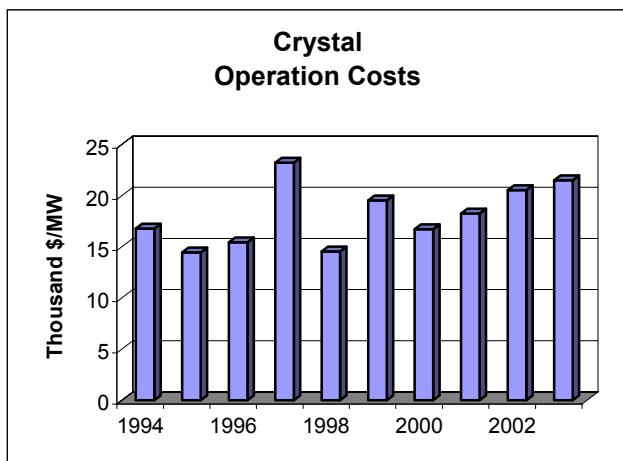


#### **Benchmark 2** **Reclamation's Production Cost as Percentage of Wholesale Firm Rate**

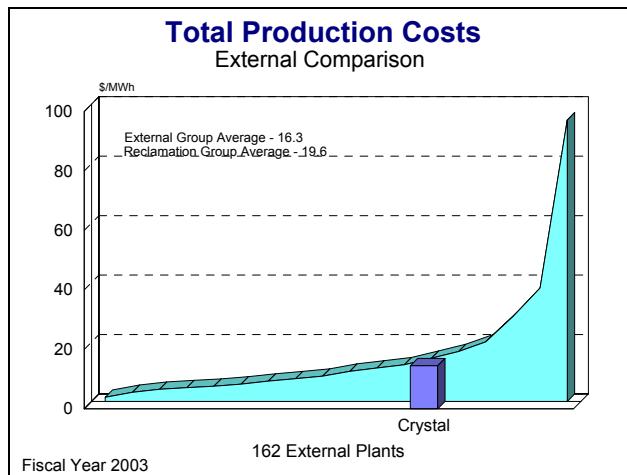
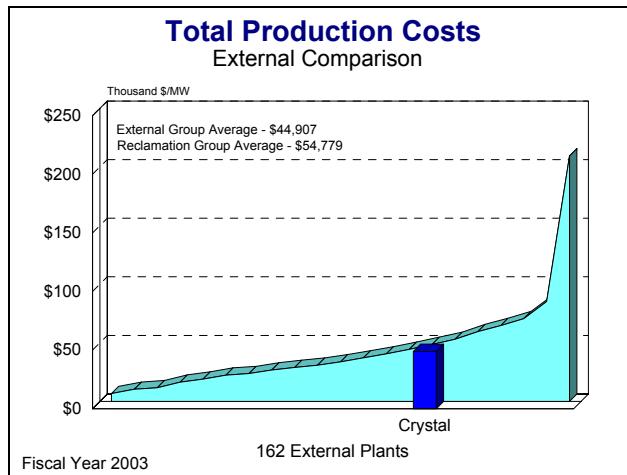
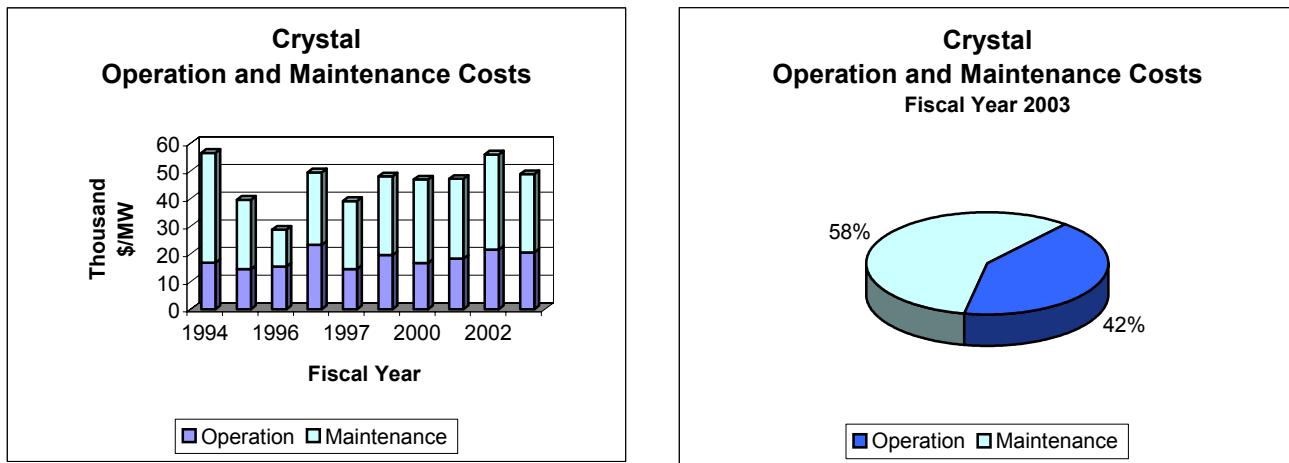


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**Benchmark 3**  
**Production Cost**



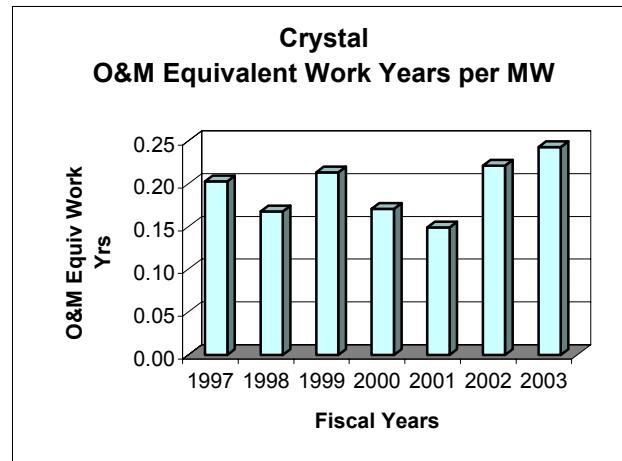
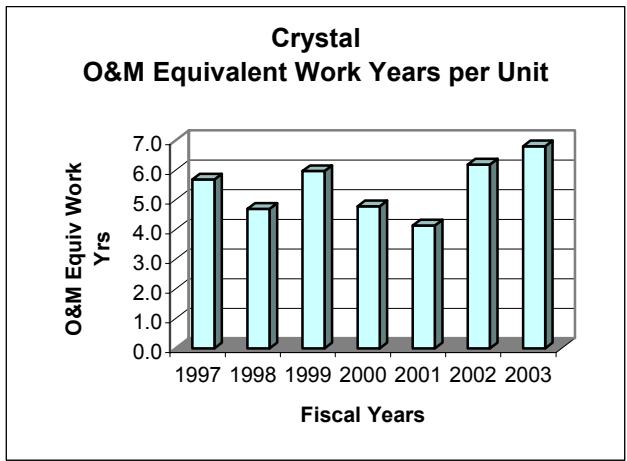
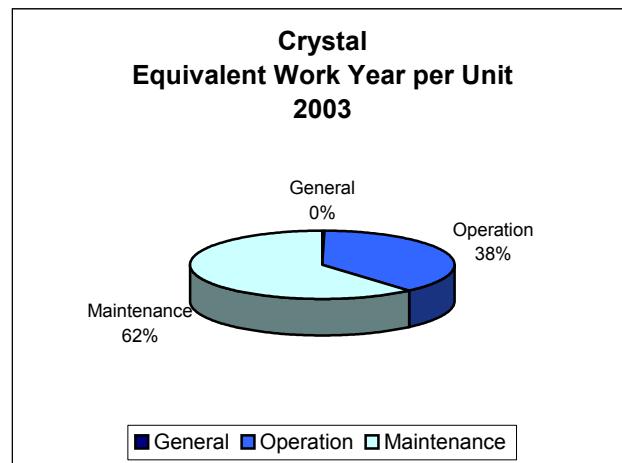
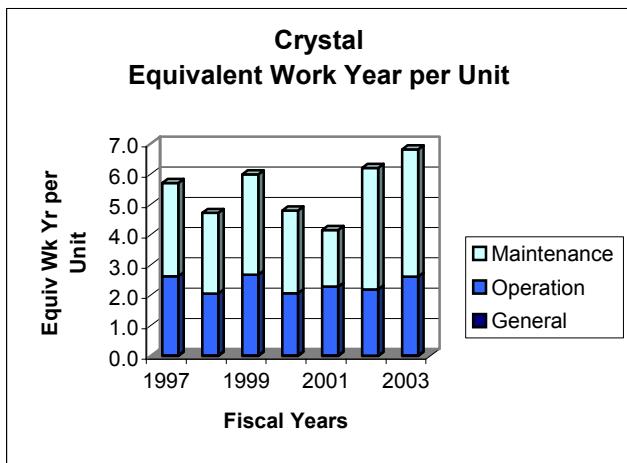
**Benchmark 3**  
**Production Cost**



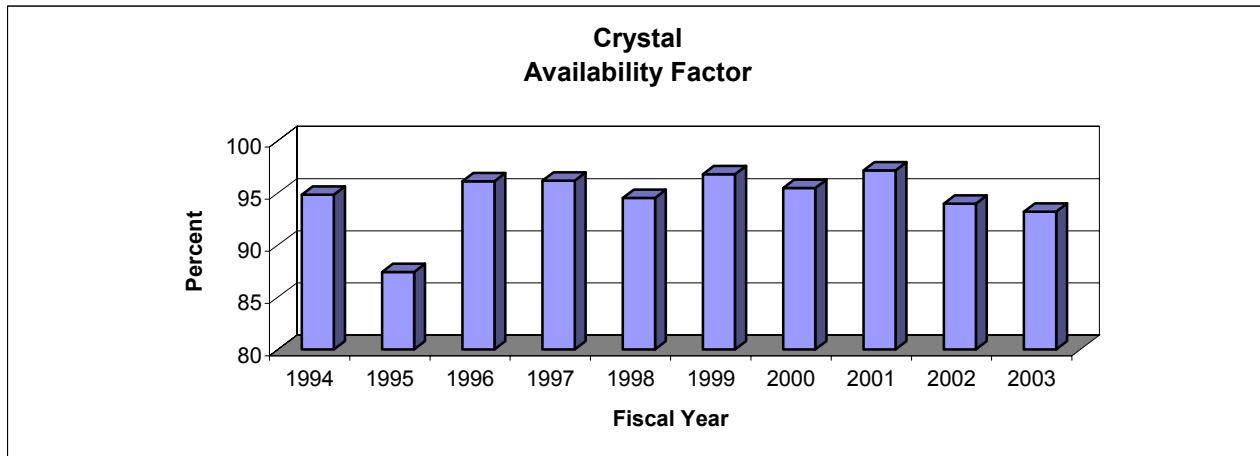
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**Benchmark 4**  
**Workforce Deployment**

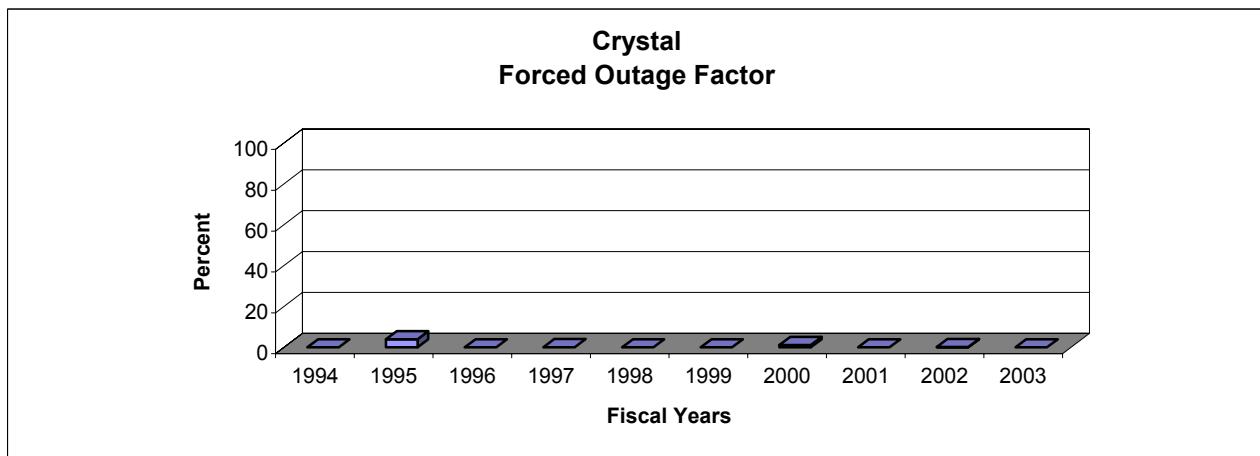
<b>Crystal 2003      Equivalent Work Year Levels</b>						
	Equiv Work Year Charged to Powerplant	Leave Additive	Denver and Washington Equiv Work Year Additive	Total Equiv Work Year Allocated to Powerplant	Total Equiv Work year per Generating Unit	Total Equiv Work Year per Megawatt
General	0	0	0.02	0.02	0.02	0.00
Operation	2.32	0.28	0	2.6	2.6	0.09
Maintenance	3.75	0.45	0	4.19	4.19	0.15
Total Staffing	6.07	0.73	0.02	6.82	6.82	0.24



**Benchmark 5**  
**Availability Factor**

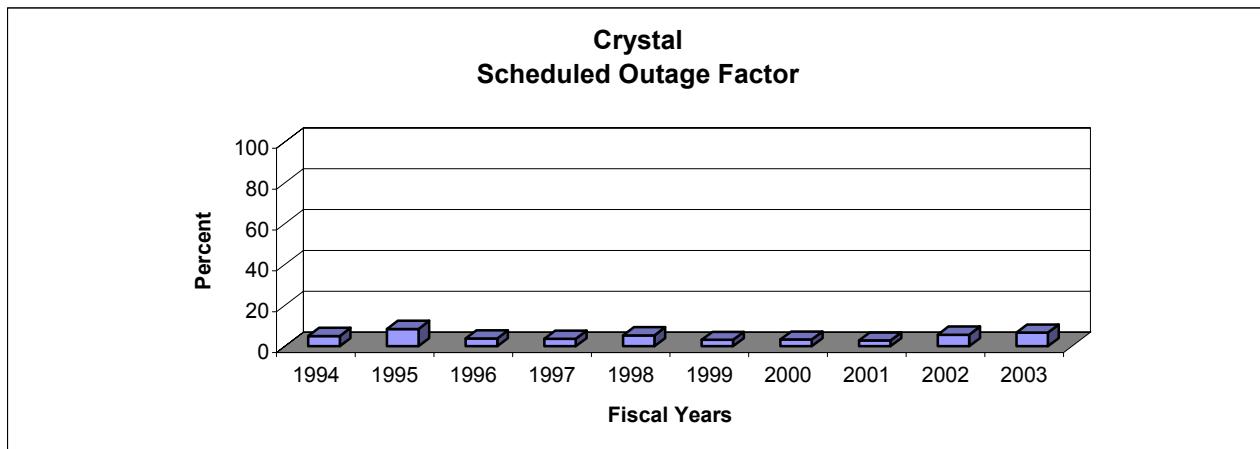


**Benchmark 6**  
**Forced Outage Factor**

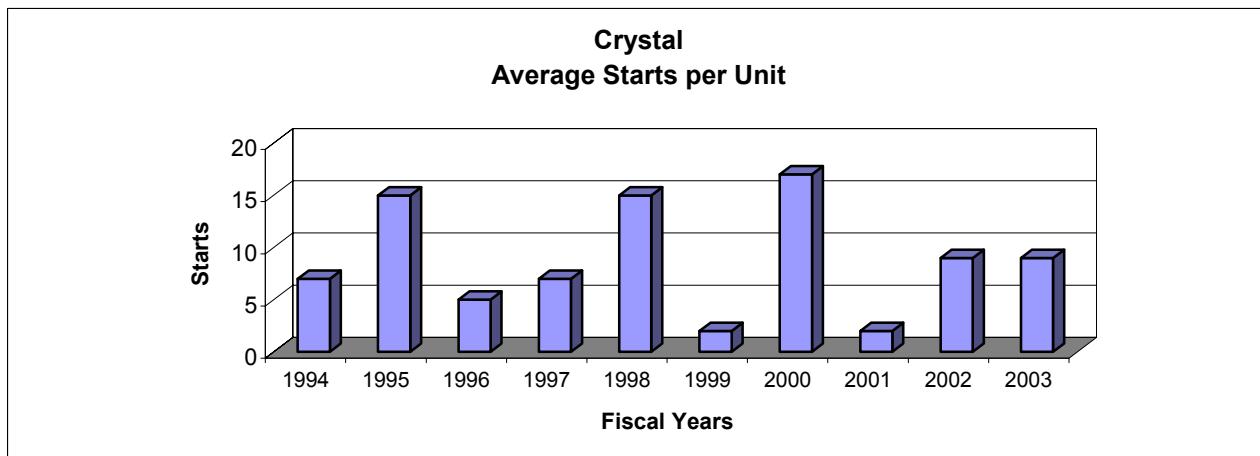


FY-95 - Transformer low voltage bushing failure

**Benchmark 7**  
**Scheduled Outage Factor**



**Starts**



## Benchmark Data Comparison

Fiscal Year 2003	Crystal Powerplant	Reclamation Average 10-30 MW Group	Total Reclamation Average	Industry Average	Best Performers
<b>Wholesale Firm Rate Mills/kWh</b>	20.7	Not Applicable	*23.1	Not Available	Not Available
<b>Production Cost as Percentage of Wholesale Firm Rate</b>	1.51%	Not Applicable	12.0%	Not Applicable	Not Applicable
<b>O&amp;M Cost \$/MWh</b>	14.5	17.0	2.7	16.3	1.1
<b>O&amp;M Costs \$/MW</b>	48,872	54,175	7,315	44,907	3,108
<b>O&amp;M Equiv Work Year per MW</b>	0.2	0.3	0.04	Not Available	0.01
<b>Availability Factor</b>	93.2	84.2	83.6	**88.9	99.1
<b>Forced Outage Factor</b>	0.0	0.7	1.5	**2.4	0.0
<b>Scheduled Outage Factor</b>	6.8	15.1	14.9	**8.7	0.0

\*Weighted by Net Generation

\*\*2002 NERC Average